



BioMap and Living Waters

Guiding Land Conservation for Biodiversity in Massachusetts

Core Habitats of Belchertown

This report and associated map provide information about important sites for biodiversity conservation in your area.

This information is intended for conservation planning, and is not intended for use in state regulations.

Produced by:
Natural Heritage & Endangered Species Program
Massachusetts Division of Fisheries and Wildlife
Executive Office of Environmental Affairs
Commonwealth of Massachusetts

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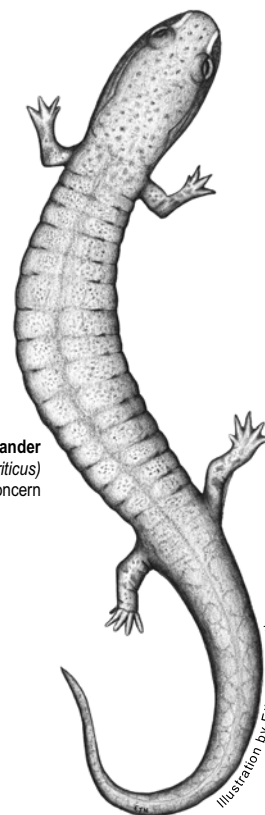
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* Depending on the location of Core Habitats, your city or town may not have all of these sections.

Spring Salamander
(*Gyrinophilus porphyriticus*)
Species of Special Concern



Funding for this project was made available by the Executive Office of Environmental Affairs, contributions to the Natural Heritage & Endangered Species Fund, and through the State Wildlife Grants Program of the US Fish & Wildlife Service.



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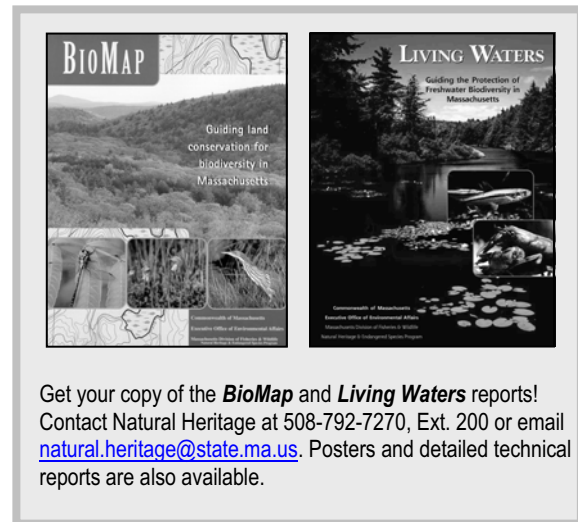
Introduction

In this report, the Natural Heritage & Endangered Species Program provides you with site-specific biodiversity information for your area. Protecting our biodiversity today will help ensure the full variety of species and natural communities that comprise our native flora and fauna will persist for generations to come.

The information in this report is the result of two statewide biodiversity conservation planning projects, **BioMap** and **Living Waters**. The goal of the BioMap project, completed in 2001, was to identify and delineate the most important areas for the long-term viability of terrestrial, wetland, and estuarine elements of biodiversity in Massachusetts. The goal of the Living Waters project, completed in 2003, was to identify and delineate the rivers, streams, lakes, and ponds that are important for freshwater biodiversity in the Commonwealth. These two conservation plans are based on documented observations of rare species, natural communities, and exemplary habitats.

What is a Core Habitat?

Both BioMap and Living Waters delineate **Core Habitats** that identify the most critical sites for biodiversity conservation across the state. Core Habitats represent habitat for the state's most viable rare plant and animal populations and include exemplary natural communities and aquatic habitats. Core Habitats represent a wide diversity of rare species and natural communities (see Table 1), and these areas are also thought to contain virtually all of the other described species in Massachusetts. Statewide, BioMap Core Habitats encompass 1,380,000 acres of uplands and wetlands, and Living Waters identifies 429 Core Habitats in rivers, streams, lakes, and ponds.



Core Habitats and Land Conservation

One of the most effective ways to protect biodiversity for future generations is to protect Core Habitats from adverse human impacts through land conservation. For Living Waters Core Habitats, protection efforts should focus on the **riparian areas**, the areas of land adjacent to water bodies. A naturally vegetated buffer that extends 330 feet (100 meters) from the water's edge helps to maintain cooler water temperature and to maintain the nutrients, energy, and natural flow of water needed by freshwater species.

In Support of Core Habitats

To further ensure the protection of Core Habitats and Massachusetts' biodiversity in the long-term, the BioMap and Living Waters projects identify two additional areas that help support Core Habitats.

In BioMap, areas shown as **Supporting Natural Landscape** provide buffers around the Core Habitats, connectivity between Core Habitats, sufficient space for ecosystems to function, and contiguous undeveloped habitat for common species. Supporting Natural Landscape was



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generated using a Geographic Information Systems (GIS) model, and its exact boundaries are less important than the general areas that it identifies. Supporting Natural Landscape represents potential land protection priorities once Core Habitat protection has been addressed.

In Living Waters, **Critical Supporting Watersheds** highlight the immediate portion of the watershed that sustains, or possibly degrades, each freshwater Core Habitat. These areas were also identified using a GIS model. Critical Supporting Watersheds represent developed and undeveloped lands, and can be quite large. Critical Supporting Watersheds can be helpful in land-use planning, and while they are not shown on these maps, they can be viewed in the Living Waters report or downloaded from www.mass.gov/mgis.

Understanding Core Habitat Species, Community, and Habitat Lists

What's in the List?

Included in this report is a list of the species, natural communities, and/or aquatic habitats for each Core Habitat in your city or town. The lists are organized by Core Habitat number.

For the larger Core Habitats that span more than one town, the species and community lists refer to the entire Core Habitat, not just the portion that falls within your city or town. For a list of all the state-listed rare species within your city or town's boundary, whether or not they are in Core Habitat, please see the town rare species lists available at www.nhesp.org.

The list of species and communities within a Core Habitat contains only the species and

Table 1. The number of rare species and types of natural communities explicitly included in the BioMap and Living Waters conservation plans, relative to the total number of native species statewide.

BioMap		
Biodiversity Group	Species and Verified Natural Community Types	
	Included in BioMap	Total Statewide
Vascular Plants	246	1,538
Birds	21	221 breeding species
Reptiles	11	25
Amphibians	6	21
Mammals	4	85
Moths and Butterflies	52	An estimated 2,500 to 3,000
Damselflies and Dragonflies	25	An estimated 165
Beetles	10	An estimated 2,500 to 4,000
Natural Communities	92	> 105 community types
Living Waters		
Biodiversity Group	Species	
	Included in Living Waters	Total Statewide
Aquatic Vascular Plants	23	114
Fishes	11	57
Mussels	7	12
Aquatic Invertebrates	23	An estimated > 2500

natural communities that were explicitly included in a given BioMap or Living Waters Core Habitat. Other rare species or examples of other natural communities may fall within the Core Habitat, but for various reasons are not included in the list. For instance, there are a few rare species that are omitted from the list or summary because of their particular sensitivity to the threat of collection. Likewise, the content of many very small Core Habitats are not described in this report or list, often because they contain a single location of a rare plant



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species. Some Core Habitats were created for suites of common species, such as forest birds, which are particularly threatened by habitat fragmentation. In these cases, the individual common species are not listed.

What does 'Status' mean?

The Division of Fisheries and Wildlife determines a status category for each rare species listed under the Massachusetts Endangered Species Act, M.G.L. c.131A, and its implementing regulations, 321 CMR 10.00. Rare species are categorized as Endangered, Threatened, or of Special Concern according to the following:

- **Endangered** species are in danger of extinction throughout all or a significant portion of their range or are in danger of extirpation from Massachusetts.
- **Threatened** species are likely to become Endangered in Massachusetts in the foreseeable future throughout all or a significant portion of their range.
- **Special Concern** species have suffered a decline that could threaten the species if allowed to continue unchecked or occur in such small numbers or with such restricted distribution or specialized habitat requirements that they could easily become Threatened in Massachusetts.

In addition, the Natural Heritage & Endangered Species Program maintains an unofficial **watch list** of plants that are tracked due to potential conservation interest or concern, but are not regulated under the Massachusetts Endangered Species Act or other laws or regulations. Likewise, described natural communities are not regulated any laws or regulations, but they can help to identify ecologically important areas that are worthy of protection. The status of natural

Legal Protection of Biodiversity

BioMap and Living Waters present a powerful vision of what Massachusetts would look like with full protection of the land that supports most of our biodiversity. To create this vision, some populations of state-listed rare species were deemed more likely to survive over the long-term than others.

Regardless of their potential viability, all sites of state-listed species have full legal protection under the Massachusetts Endangered Species Act (M.G.L. c.131A) and its implementing regulations (321 CMR 10.00). Habitat of state-listed wildlife is also protected under the Wetlands Protection Act Regulations (310 CMR 10.37 and 10.59). The **Massachusetts Natural Heritage Atlas** shows **Priority Habitats**, which are used for regulation under the Massachusetts Endangered Species Act and Massachusetts Environmental Policy Act (M.G.L. c.30) and **Estimated Habitats**, which are used for regulation of rare wildlife habitat under the Wetlands Protection Act. For more information on rare species regulations, see the *Massachusetts Natural Heritage Atlas*, available from the Natural Heritage & Endangered Species Program in book and CD formats.

BioMap and Living Waters are conservation planning tools and do not, in any way, supplant the Estimated and Priority Habitat Maps which have regulatory significance. Unless and until the combined BioMap and Living Waters vision is fully realized, we must continue to protect all populations of our state-listed species and their habitats through environmental regulation.

communities reflects the documented number and acreages of each community type in the state:

- **Critically Imperiled** communities typically have 5 or fewer documented sites or have very few remaining acres in the state.
- **Imperiled** communities typically have 6-20 sites or few remaining acres in the state.
- **Vulnerable** communities typically have 21-100 sites or limited acreage across the state.
- **Secure** communities typically have over 100 sites or abundant acreage across the state; however excellent examples are identified as Core Habitat to ensure continued protection.



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Understanding Core Habitat Summaries

Following the BioMap and Living Waters Core Habitat species and community lists, there is a descriptive summary of each Core Habitat that occurs in your city or town. This summary highlights some of the outstanding characteristics of each Core Habitat, and will help you learn more about your city or town's biodiversity. You can find out more information about many of these species and natural communities by looking at specific *fact sheets* at www.nhesp.org.

Next Steps

BioMap and Living Waters were created in part to help cities and towns prioritize their land protection efforts. While there are many reasons to conserve land – drinking water protection, recreation, agriculture, aesthetics, and others – BioMap and Living Waters Core Habitats are especially helpful to municipalities seeking to protect the rare species, natural communities, and overall biodiversity within their boundaries. Please use this report and map along with the rare species and community fact sheets to appreciate and understand the biological treasures in your city or town.

Protecting Larger Core Habitats

Core Habitats vary considerably in size. For example, the average BioMap Core Habitat is 800 acres, but Core Habitats can range from less than 10 acres to greater than 100,000 acres. These larger areas reflect the amount of land needed by some animal species for breeding, feeding, nesting, overwintering, and long-term survival. Protecting areas of this size can be

very challenging, and requires developing partnerships with neighboring towns.

Prioritizing the protection of certain areas within larger Core Habitats can be accomplished through further consultation with Natural Heritage Program biologists, and through additional field research to identify the most important areas of the Core Habitat.

Additional Information

If you have any questions about this report, or if you need help protecting land for biodiversity in your community, the Natural Heritage & Endangered Species Program staff looks forward to working with you.

Contact the Natural Heritage & Endangered Species Program:

by Phone 508-792-7270, Ext. 200

by Fax: 508-792-7821

by Email: natural.heritage@state.ma.us.

by Mail: North Drive
Westborough, MA 01581

The GIS datalayers of BioMap and Living Waters Core Habitats are available for download from MassGIS: www.mass.gov/mgis

Check out www.nhesp.org for information on:

- Rare species in your town
- Rare species fact sheets
- BioMap and Living Waters projects
- Natural Heritage publications, including:
 - * Field guides
 - * Natural Heritage Atlas, and more!



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BioMap: Species and Natural Communities

Belchertown

Core Habitat BM504

Natural Communities

<u>Common Name</u>	<u>Scientific Name</u>	<u>Status</u>
Acidic Rock Cliff Community		Secure
Acidic Rocky Summit/Rock Outcrop Community		Secure
Acidic Talus Forest/Woodland		Secure
Circumneutral Talus Forest/Woodland		Vulnerable
Kettlehole Level Bog		Imperiled
Level Bog		Vulnerable
Oak - Hemlock - White Pine Forest		Secure
Oak - Hickory Forest		Secure
Ridgetop Chestnut Oak Forest/Woodland		Secure
Shallow Emergent Marsh		Secure

Plants

<u>Common Name</u>	<u>Scientific Name</u>	<u>Status</u>
Climbing Fumitory	<i>Adlumia fungosa</i>	Threatened
Muskflower	<i>Mimulus moschatus</i>	Endangered

Invertebrates

<u>Common Name</u>	<u>Scientific Name</u>	<u>Status</u>
Beaver Pond Clubtail	<i>Gomphus borealis</i>	Special Concern
New England Bluet	<i>Enallagma laterale</i>	Special Concern
Sensitive Rare Invertebrate		
Spatterdock Darner	<i>Aeshna mutata</i>	Special Concern

Vertebrates

<u>Common Name</u>	<u>Scientific Name</u>	<u>Status</u>
Bald Eagle	<i>Haliaeetus leucocephalus</i>	Endangered
Blue-spotted Salamander	<i>Ambystoma laterale</i>	Special Concern



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BioMap: Species and Natural Communities

Belchertown

Common Loon	<i>Gavia immer</i>	Special Concern
Eastern Box Turtle	<i>Terrapene carolina</i>	Special Concern
Four-toed Salamander	<i>Hemidactylium scutatum</i>	Special Concern
Grasshopper Sparrow	<i>Ammodramus savannarum</i>	Threatened
Marbled Salamander	<i>Ambystoma opacum</i>	Threatened
Southern Bog Lemming	<i>Synaptomys cooperi</i>	Special Concern
Spotted Turtle	<i>Clemmys guttata</i>	Special Concern
Spring Salamander	<i>Gyrinophilus porphyriticus</i>	Special Concern
Water Shrew	<i>Sorex palustris</i>	Special Concern
Wood Turtle	<i>Clemmys insculpta</i>	Special Concern

Core Habitat BM740

Natural Communities

<u>Common Name</u>	<u>Scientific Name</u>	<u>Status</u>
Black Gum-Pin Oak-Swamp White Oak "Perched" Swamp		Imperiled
High-Terrace Floodplain Forest		Imperiled
Low-Energy Riverbank		Secure
Major-River Floodplain Forest		Imperiled

Plants

<u>Common Name</u>	<u>Scientific Name</u>	<u>Status</u>
Adder's-Tongue Fern	<i>Ophioglossum pusillum</i>	Threatened
Climbing Fern	<i>Lygodium palmatum</i>	Special Concern
Green Dragon	<i>Arisaema dracontium</i>	Threatened
Narrow-Leaved Spring Beauty	<i>Claytonia virginica</i>	Endangered
Sandbar Willow	<i>Salix exigua</i>	Threatened

Invertebrates

<u>Common Name</u>	<u>Scientific Name</u>	<u>Status</u>
Arrow Clubtail	<i>Stylurus spiniceps</i>	Threatened



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BioMap: Species and Natural Communities

Belchertown

Brook Snaketail	<i>Ophiogomphus aspersus</i>	Special Concern
Riverine Clubtail	<i>Stylurus amnicola</i>	Endangered
Sensitive Rare Invertebrate		
Zebra Clubtail	<i>Stylurus scudderi</i>	Endangered

Vertebrates

<u>Common Name</u>	<u>Scientific Name</u>	<u>Status</u>
Bald Eagle	<i>Haliaeetus leucocephalus</i>	Endangered
Four-toed Salamander	<i>Hemidactylium scutatum</i>	Special Concern
Spotted Turtle	<i>Clemmys guttata</i>	Special Concern
Wood Turtle	<i>Clemmys insculpta</i>	Special Concern

Core Habitat BM753

Plants

<u>Common Name</u>	<u>Scientific Name</u>	<u>Status</u>
Small Site for Rare Plant		

Core Habitat BM784

Natural Communities

<u>Common Name</u>	<u>Scientific Name</u>	<u>Status</u>
Black Ash Swamp		Imperiled
Circumneutral Rocky Summit/Rock Outcrop Community		Imperiled
Hickory - Hop Hornbeam Forest/Woodland		Imperiled

Plants

<u>Common Name</u>	<u>Scientific Name</u>	<u>Status</u>
Drooping Speargrass	<i>Poa languida</i>	Endangered
Green Rock-Cress	<i>Arabis missouriensis</i>	Threatened
Linear-Leaved Milkweed	<i>Asclepias verticillata</i>	Threatened
Narrow-Leaved Vervain	<i>Verbena simplex</i>	Endangered



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BioMap: Species and Natural Communities

Belchertown

Red Mulberry	<i>Morus rubra</i>	Endangered
Violet Wood-Sorrel	<i>Oxalis violacea</i>	Endangered

Vertebrates

<u>Common Name</u>	<u>Scientific Name</u>	<u>Status</u>
Eastern Box Turtle	<i>Terrapene carolina</i>	Special Concern
Jefferson Salamander	<i>Ambystoma jeffersonianum</i>	Special Concern
Marbled Salamander	<i>Ambystoma opacum</i>	Threatened
Spotted Turtle	<i>Clemmys guttata</i>	Special Concern

Core Habitat BM796

Natural Communities

<u>Common Name</u>	<u>Scientific Name</u>	<u>Status</u>
Kettlehole Level Bog		Imperiled

Core Habitat BM836

Natural Communities

<u>Common Name</u>	<u>Scientific Name</u>	<u>Status</u>
Kettlehole Level Bog		Imperiled

Core Habitat BM846

Natural Communities

<u>Common Name</u>	<u>Scientific Name</u>	<u>Status</u>
Hemlock-Hardwood Swamp		Secure

Core Habitat BM903

Plants

<u>Common Name</u>	<u>Scientific Name</u>	<u>Status</u>
Small Site for Rare Plant		



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BioMap: Species and Natural Communities

Belchertown

Core Habitat BM911

Natural Communities

Common Name

Scientific Name

Status

Level Bog

Vulnerable



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BioMap: Core Habitat Summaries

Belchertown

Core Habitat BM504

This, the largest Core Habitat, encompasses all of the Quabbin Reservoir and surrounding watershed lands that together support a tremendous wealth of biodiversity. Highlights include pristine habitats for rare dragonflies and damselflies, a multitude of large, high-quality natural communities, and several rare plant species such as the Endangered Muskflower. The Quabbin Reservoir supports the highest density of breeding Common Loons and Bald Eagles in southern New England. The area also supports other rare vertebrates, from Wood Turtles to Water Shrews.

The Core Habitat includes large tracts of upland forest and riparian habitats to the east of the Quabbin Reservation, Muddy Brook and its tributaries, including Heminway Swamp, and several miles of the East Branch of the Swift River. North of the Quabbin Reservation, it includes the Middle Branch of the Swift River, Blackington Swamp, forested and shrub wetlands near the Spectacle Ponds, and portions of Shutesbury and Wendell State Forests. Between the western edge of Quabbin Reservation and Rte. 2, the Core Habitat includes riparian habitats along Jabish Brook. Conservation of the relatively small remaining areas of unprotected land within this Core Habitat is desirable to increase the amount of contiguous, protected habitat.

Natural Communities

There are extensive Oak-Hickory and Oak-Hemlock-White Pine Forests that surround the Quabbin Reservoir. Oak-Hickory Forests are dominated by a variety of Oak species, with Hickories present in lower densities. They generally occupy well-drained sites, such as upper slopes or ridgetops often with west and south-facing aspects. Here these forests support some of the largest disturbance-free Acidic Talus Forests and Acidic Cliffs in the state. Acidic Talus Forest communities develop on boulder strewn slopes below cliffs, with scattered trees, tall shrubs, vines, and ferns. There is often a gradient of vegetation density as the slope changes, with more trees on the lower slope. Small patches of Ridgetop Chestnut Oak Forests commonly occur on the dry, rocky, summits above these talus slopes. This Core Habitat also contains several high-quality bogs, including one classic northern Kettlehole Level Bog in excellent condition, which is buffered by upland forest and free of disturbance. Kettlehole Level Bogs are acidic dwarf shrub peatlands with little water input or outflow that form in circular depressions left by melting iceblocks in sandy glacial outwash. The vegetation in Kettlehole Level Bogs usually grows in rings.

Plants

This Core Habitat supports a population of the Endangered Muskflower, a small yellow-flowered plant of seeps. Also present is a healthy population of the Threatened Climbing Fumitory, a biennial vine that clambers over rocks.



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Belchertown

Invertebrates

Numerous wetlands of many different types are dispersed throughout this Core Habitat, providing pristine habitat for rare dragonflies and damselflies that is located within a very large and unfragmented natural landscape. For example, boggy areas are inhabited by the New England Bluet damselfly, and ponds and coves around the perimeter of Quabbin Reservoir are habitat for the Beaver Pond Clubtail and the Spatterdock Darner dragonflies. It is likely that this Core Habitat is inhabited by many other rare dragonfly and damselfly species.

Vertebrates

The waters and shoreline of the Quabbin Reservoir support the highest density of breeding Common Loons and breeding and wintering Bald Eagles in southern New England. Riparian habitats along Muddy Brook, the Swift River, and Jabish Brook provide significant habitat for Wood Turtles. Populations of Spotted and Eastern Box Turtles, Four-toed, Spring, Marbled, and Blue-spotted Salamanders, Water Shrews, and Southern Bog Lemmings are known from various locations within this Core Habitat, and more populations likely occur here. This Core Habitat also contains one of the largest undeveloped blocks of habitat in central Massachusetts for a variety of forest birds. Conservation efforts should focus on expanding and connecting the large areas of conservation land that are already protected within this Core Habitat.

Core Habitat BM740

This Core Habitat is an important area for several rare plants and animals. It encompasses riparian habitats along portions of the Connecticut River, the Fort River, and Hop Brook, including extensive forested wetlands and small wet meadows in Lawrence Swamp. These areas support a diversity of rare dragonflies and plants, as well as Wood Turtles, Spotted Turtles, Four-toed Salamanders, and Bald Eagles. The Core Habitat also contains unusual wetland communities, including one that is specific to this part of the state. While some parts of this Core Habitat are protected, many riparian habitats appear to be unprotected.

Natural Communities

This Core Habitat contains large examples of both Major-River Floodplain Forest and Black Gum-Pin Oak-Swamp White Oak "Perched" Swamp natural communities. Major-River Floodplain Forests are dominated by Silver Maple. This community type is found along the floodplains of large rivers. The soils are enriched with nutrients brought by annual floods, resulting in a diversity of plants and insects. This floodplain forest is well-developed, with only a few exotic invasive plant species restricted to small sections where disturbances such as trails exist. This is the second-best known Major-River Floodplain Forest included on the BioMap. Meanwhile, Black Gum-Pin Oak-Swamp White Oak "Perched" Swamps are an unusual type of wetland found in Massachusetts in one area of the Connecticut River Valley. This community type is dominated by Red Maple, with Black Gum, Pin Oak, and Swamp White Oak.



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Plants

Nine rare plant populations are found growing in different parts of this large Core Habitat. Several populations of the Climbing Fern, a plant Species of Special Concern, are found in swampy areas, while one population of the Threatened Green Dragon grows along a river floodplain. Other rare plant species found here are the Narrow-Leaved Spring Beauty (Endangered) and the Sandbar Willow (Threatened).

Invertebrates

In its westernmost portion, this Core Habitat includes a 5-km stretch of the Connecticut River and surrounding uplands in Northampton and Hadley that are critical habitat for rare dragonfly species, including the Endangered Riverine Clubtail dragonfly, the Threatened Arrow Clubtail dragonfly, and the Brook Snaketail dragonfly, a Species of Special Concern. Some portions of the shoreline habitat are within the protected areas such as the Rainbow Beach and Sheperds Island Conservation Areas and the Connecticut River Greenway and Skinner State Park. Pollution and hydrologic alterations originating upstream, downstream, or within this Core Habitat are major threats to the rare species inhabiting the area.

Vertebrates

The diverse riparian and wetland habitats within this Core Habitat support significant populations of Wood Turtles, Spotted Turtles, and Four-toed Salamanders. Wood Turtles may use over 13 connected miles of the Fort River and Hop Brook and associated wetlands, and range out 600 yards into forested and agricultural uplands. Lawrence Swamp is a large complex of forested and shrub wetlands, small wet meadows, and vernal pools that supports a significant population of Spotted Turtles. Four-toed Salamanders occur in pools and seeps where sphagnum moss is abundant. Conservation efforts should seek to maximize the width and extent of undeveloped riparian corridors along the Fort River and Hop Brook to ensure that the habitat quality of this Core Habitat does not get further degraded by roads and suburban development.

This Core Habitat also encompasses partially wooded shorelines and islands along a portion of the Connecticut River in Northampton. These areas provide relatively undisturbed perching habitat for wintering and non-breeding Bald Eagles that forage along the river, as well possible future nest sites for this species.



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BioMap: Core Habitat Summaries

Belchertown

Core Habitat BM784

This Core Habitat comprises the largely undeveloped eastern half of the Holyoke Range in Granby and Amherst, as well as riparian wetlands along Bachelor Brook and some of its tributaries in Granby and Belchertown. The Core Habitat supports rare species of reptiles and amphibians, and is an important site for Eastern Box Turtles in particular. The area contains interesting natural communities, such as a Hickory-Hop Hornbeam Forest, and supports an array of rare plant species, including the Endangered Violet Wood-Sorrel. Over half of the Core Habitat remains unprotected, including most of the eastern portions of the Holyoke Range and areas along Bachelor Brook.

Natural Communities

This Core Habitat contains the excellent, bald-like, rocky summits on Mount Norwottock in the Holyoke Range. The south-facing slopes of Mount Norwottock also support a high-quality Hickory-Hop Hornbeam Forest and a species-rich Black Ash Swamp. Hickory-Hop Hornbeam Forests are open, mixed hardwood forests dominated by various Hickory species and with significant Hop Hornbeam in the subcanopy. This community type is characterized by a sparse shrub layer, and a rich diversity of herbaceous flora. Meanwhile, Black Ash Swamps are a variant of Red Maple Swamps with Black Ash co-dominant in the canopy. The soils that support Black Ash Swamps are enriched with less acidic, more nutrient-rich groundwater seepage. Here both communities are all well-buffered within an extensive tract of forested land.

Plants

A diversity of upland rare plant species can be found in this part of the Holyoke Range, including the Violet Wood-Sorrel, a small herb found in the understory of rich forests, and Green Rock-Cress, a stiffly upright plant growing from a basal rosette on bluffs and ledges.

Vertebrates

This large, topographically diverse and largely forested Core Habitat provides significant habitat for Eastern Box Turtles. Because it remains mostly undeveloped and contains large roadless areas, this site may represent one of the best remaining opportunities for the preservation of viable populations of this species in the rapidly developing Connecticut River Valley. Significant habitat for Jefferson and Marbled Salamanders may be found in the seasonal pools near the base of slopes, and riparian wetlands along Bachelor Brook provide significant habitat for Spotted Turtles. Populations of Four-toed Salamanders and Wood Turtles may be present here as well. This area also provides important breeding and migration habitat for a variety of forest birds.

Core Habitat BM796

Natural Communities

This Core Habitat contains a small, yet high-quality, Kettlehole Level Bog. Kettlehole Level Bogs are acidic dwarf shrub peatlands with little water input or outflow that form in circular depressions left by melting iceblocks in sandy glacial outwash. The vegetation in Kettlehole Level Bogs usually grows in rings.



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BioMap: Core Habitat Summaries

Belchertown

Core Habitat BM836

Natural Communities

This Core Habitat contains a classic northern Kettlehole Level Bog in a large depression that is buffered by intact upland forest. Kettlehole Level Bogs are acidic dwarf shrub peatlands with little water input or outflow that form in circular depressions left by melting iceblocks in sandy glacial outwash. The vegetation in Kettlehole Level Bogs usually grows in rings.

Core Habitat BM846

Natural Communities

This Core Habitat contains a species-rich Hemlock-Hardwood Swamp that is small but of good quality and well-buffered by surrounding upland forest. Hemlock-Hardwood Swamps are acidic forested swamps that have Hemlock as the dominant canopy species. These forested wetlands occur on saturated soils in poorly drained basins throughout the central and western portions of the state.

Core Habitat BM911

Natural Communities

This Core Habitat contains a small, yet good-quality, Level Bog that is well-buffered by surrounding forested land. Level Bogs are dwarf shrub peatlands, generally with pronounced hummock and hollow formations. These wetland peatlands are our most acidic and nutrient-poor, because they receive little overland water input, and are not connected to the water table.



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Living Waters: Species and Habitats

Belchertown

Core Habitat LW006

Exemplary Habitats

Common Name

Scientific Name

Status

Invertebrate Habitat

Core Habitat LW092

Fishes

Common Name

Scientific Name

Status

Bridle Shiner

Notropis bifrenatus

Special Concern

Core Habitat LW309

Exemplary Habitats

Common Name

Scientific Name

Status

Lake/Pond Habitat

Fishes

Common Name

Scientific Name

Status

Bridle Shiner

Notropis bifrenatus

Special Concern

Core Habitat LW310

Invertebrates

Common Name

Scientific Name

Status

Creeper

Strophitus undulatus

Special Concern

Triangle Floater

Alasmidonta undulata

Special Concern

Fishes

Common Name

Scientific Name

Status

Bridle Shiner

Notropis bifrenatus

Special Concern



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Living Waters: Core Habitat Summaries

Belchertown

Core Habitat LW006

The clear waters of Scarboro Brook below Scarboro Pond flow swiftly over and around the brook's cobbles and boulders. The Core Habitat supports a healthy community of the more ecologically sensitive aquatic insects: mayflies, stoneflies, and caddisflies. The presence of this invertebrate community indicates the stream habitats here are relatively free of the impacts of development. Forested stream banks help maintain the high-quality habitat by shading the water to keep it cool, by providing a natural energy source to the stream ecosystem in the form of leaves and sticks, and by controlling the runoff of sediments, excess nutrients, and water. Some sediment deposition was apparent in the area of the Core Habitat due to the lack of a vegetated buffer between the brook and Gulf Road.

Core Habitat LW092

Metacomet Lake contains one of six known Bridle Shiner habitats in the Connecticut Watershed. This fish Species of Special Concern has a small range from southern New England to South Carolina, and has been declining or extirpated in much of the region. The Bridle Shiner is typically found in well-vegetated, quiet waters. It feeds on small aquatic insects and other invertebrates, and is an important part of the freshwater ecosystem as prey for larger fishes.

Core Habitat LW309

The Quabbin Reservoir is the largest and deepest water body in Massachusetts. Although manmade, the cool, clean, low-nutrient waters of the Quabbin Reservoir provide habitats for fishes, aquatic insects, and other aquatic invertebrates that are uncommon in Massachusetts.

Within this Core Habitat, are two of the six known populations of Bridle Shiner in the Chicopee Watershed, one in Prescott Brook and the other in Pottapaug Pond, part of the Quabbin Reservoir. This fish Species of Special Concern has a small range from southern New England to South Carolina, and has been declining or extirpated in much of the region. The Bridle Shiner is typically found in well-vegetated, quiet waters. It feeds on small aquatic insects and other invertebrates, and is an important part of the freshwater ecosystem as prey for larger fishes. This population of Bridle Shiner in Prescott Brook has persisted since at least 1954.

Core Habitat LW310

A diversity of river habitats is found along the more than 40 mile length of the Ware River. Despite the urban centers and historic mills dotted along its banks, the extensive tracts of undeveloped land that remain along the Ware River help create high-quality river habitats and act as buffers from pollution. Some of the most varied fish communities in Worcester County are also found here. A combination of these factors help make the Ware River one of the more diverse freshwater mussel sites, supporting seven of the twelve species found in the state. Robust populations of the rare Triangle Floater and the rare Creeper mussel are found here, as well as more infrequent occurrences of the Endangered Brook Floater. Increasing the width of naturally vegetated riparian buffers in developed or agricultural areas is likely to have a positive effect on mussel abundance.



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Living Waters: Core Habitat Summaries

Belchertown

This Core Habitat also supports one of six known populations of Bridle Shiner in the Chicopee Watershed. This small fish Species of Special Concern has a small range from southern New England to South Carolina, and has been declining or extirpated in much of the region. The Bridle Shiner is typically found in well-vegetated, quiet waters. It feeds on small aquatic insects and other invertebrates, and is an important part of the freshwater ecosystem as prey for larger fishes.



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